Intrathecal Baclofen (ITB) is a common treatment for children with spastic cerebral palsy (sCP) to reduce spasticity and muscle tone.

Repetitive movement test (RMtest) is designed to measure involuntary muscle reflexes and tone.

**Background**
- Intrathecal Baclofen (ITB) is a common treatment for children with spastic cerebral palsy (sCP) to reduce spasticity and muscle tone.
- Repetitive movement test (RMtest) is designed to measure involuntary muscle reflexes and tone.

**Can the RMtest be used to evaluate ITB effects in children with sCP?**
- Is the RMtest repeatable?
- Is the RMtest sensitive to ITB treatment?

**Materials & Methods**

**Protocol**
- 22 children with sCP (12±3 yrs, GMFCS ≥ 3)
- Repetitive (~20) manual full ROM passive ankle flexion/extension movement of 1 Hz
- **Repeatability:** test performed 3 times by examiner1 and once by examiner2
- **Sensitivity:** pre and post test-treatment performed by examiner1 (subset n=4)

**Instrumentation**
- Electrogoniometer for ankle joint angle
- Surface EMG of TA, GA and SO

**Parameters and statistics**
- ROM ankle
- Dynamic stretch reflex (DSR)
  - Peak EMG-activity during stretch
- Tonic stretch reflex (TSR)
  - Min. EMG-activity during movement
- ICC & Smallest Detectable Difference (SDD)

**Results**

<table>
<thead>
<tr>
<th></th>
<th>Within-examiner repeatability</th>
<th>Between-examiner Repeatability</th>
<th>Pre-post treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SEM</td>
<td>SDD</td>
<td>ICC</td>
</tr>
<tr>
<td>ROM</td>
<td>2.5</td>
<td>6.8</td>
<td>0.9</td>
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<tr>
<td>DRS (µV) TA</td>
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<td>5.6</td>
<td>0.7</td>
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<tr>
<td>GA</td>
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<td>7.2</td>
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<tr>
<td>SO</td>
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<td>0.8</td>
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<tr>
<td>TRS (µV) TA</td>
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<td>0.5</td>
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<tr>
<td>GA</td>
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</tr>
<tr>
<td>SO</td>
<td>0.7</td>
<td>1.9</td>
<td>0.9</td>
</tr>
</tbody>
</table>

- ICC and SDD acceptable within-examiner
- ↑ around 60% SEM/SDD and ↓ ICC in between-examiner compared to within-examiner
- Pre-post treatment values did not exceed the within-examiner SDD

**Discussion**
- RMtest can’t be a single tool to inform clinical decisions but can provide insightful quantification of the muscle responses
- The RMtest should always be performed with same examiner
- Evaluation results of pre-post treatment should be solidified in more comprehensive patient study

RMT shows moderate repeatability and sensitivity to treatment within one examiner in children with sCP